TO:	Mr. Carl P. Garvey and Mr. M. Brendan Mullen (Revitalizing Auto Communities Environmental Response Trust) Mr. Alan J. Knauf and Ms. Linda R. Shaw (Knauf Shaw LLP)
FROM:	Katherine Lasseter, Jason Dittman, Jamie Combes, and Alice England (TIG Environmental) 443 North Franklin Street, Suite 220, Syracuse, NY 13204
SUBJECT:	**Evidence Summary Memorandum for Western Electric**
DATE:	October 2, 2019

1. Introduction

Revitalizing Auto Communities Environmental Response (RACER) Trust and Knauf Shaw LLP (Knauf Shaw) contacted TIG Environmental[1] to provide consulting services regarding potentially responsible party (PRP) identification and investigation, sampling and data analysis, and expert witness testimony to support RACER Trust and Knauf Shaw during litigation proceedings stemming from a Civil Action No.: 5:18-cv-1267 [DNH/ATB] filed on October 26, 2018 (the Complaint) (RACER 2018).

In the Complaint, RACER Trust, by its attorneys, Knauf Shaw LLP, brings claims for cost recovery and contribution under Sections 107(a) and 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9607(a) and 9613(f), inter alia, against parties (Defendants) operating in or around the Ley Creek Watershed Site (Study Area) in Onondaga County, New York. The Complaint asserts that the Defendants are responsible to contribute to the cost of past and future investigations to address contamination in and around the Study Area.

The Study Area consists of the GM-Inland Fisher Guide Facility (GM-IFG) Sub-Site Operable Unit 1 (OU-1), the expanded OU-2 area (Ley Creek from Townline Road west to Route 11, including creek banks and limited floodplain and hotspot areas), and tributaries upstream of Townline Road bridge. As defined in the Record of Decision (ROD) for OU-2, the identified contaminants of concern (COCs) in the Study Area are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, copper, lead, nickel, and zinc. PCBs are the predominant contaminants in Ley Creek sediments (NYSDEC and EPA 2015).

[1] TIG Environmental is a member of The Intelligence Group, LLC.

Evidence Summary Memorandum for Western Electric

In this evidence summary memorandum (ESM), TIG Environmental reviewed evidence gathered by RACER Trust and Knauf Shaw to evaluate the following for each Defendant's site:

- Documented and suspected PCB usage at the Defendant's site
- The existence of PCB-containing electrical equipment or electrical substations (utility- or Defendant-owned) on Defendant's site
- Whether pathways exist between the Defendant's site and the Ley Creek watershed (defined as Ley Creek and its tributaries)

Sections 2 through 4 summarize the available information on Defendant operations related, or potentially related, to PCB usage; detections of contaminants at or related to the Defendant's site; permits, waste handling, spills, and/or releases at each site; whether pathways from the Site to Ley Creek watershed can be determined; data gaps; and proposed sampling to address identified data gaps. Defendant information, site ownership information, and dates of operation for the Defendant's site are available in Knauf Shaw's site dossier (Knauf Shaw Western Electric Site Dossier).

2. Description of Site Operations Related to PCBs

From 1951 to 1983, Western Electric Company, Inc. (Western Electric)[2] owned and operated the Western Electric Site (the Site) at 6360 Thompson Road in Syracuse, New York (Knauf Shaw Western Electric Site Dossier, 1). Western Electric constructed a distribution house in 1951 that served as a supply and repair center to support Bell Telephone Company operations (Knauf Shaw Western Electric Site Dossier, 1; Knauf Shaw Western Electric Exhibit C, 1). In 1984, Western Electric sold the Site to Telesector Resources Group, Inc. (Telesector)[3] (Knauf Shaw Western Electric Site Dossier, 2).

As a distribution house for Bell Telephone Company, Western Electric provided warehouse and large-scale repair operations for telephone equipment at the Site. Each of Western Electric's facilities stocked various materials and supplies to support Bell Telephone Company operations (Western Electric 1964, 59). The distribution houses reconditioned and repaired Bell Telephone Company's telephone sets, teletypewriters, switchboards, and other office and electronic equipment (Western Electric 1964, 59). Switches and capacitors in electronic equipment are known to be associated with PCB Use (Erickson and Kaley 2010, 1, 7–8; NJANG 2017, 8, 10–11). As described in greater detail below, activities potentially linked to PCBs during Western Electric's operation of the Site (1951 to 1983) include repairing telephone cables,

[2] Through a series of complex corporate transactions, Nokia of America Corporation (Nokia) (2016-present) is the successor of Western Electric's operation (Knauf Shaw Western Electric Site Dossier, 2). All site ownership and corporate successor information is provided in the site dossier; TIG Environmental did not conduct independent research to confirm the ultimate corporate successor. For the purposes of this memorandum, the onsite operator will be referred to as Western Electric.

[3] Through a series of complex corporate transactions, Telesector is the successor of site owners and operators after Western Electric sold the Site in 1984. Prior names of this entity include NYNEX Service Company (NYNEX) (1984 to 1997), Bell Atlantic (1997 to 2000) and Verizon Communications, Inc. (since 2000) (Knauf Shaw Western Electric Site Dossier, 2). All site ownership and corporate successor information is provided in the site dossier; TIG Environmental did not conduct independent research to confirm the ultimate corporate successor. For the purposes of this memorandum, the post-1984 owner and operator will be referred to as Telesector. The Site currently appears to be operated as a Verizon corporate office for fiber-based communication services (Knauss 2014, 1).

reconditioning telephone equipment using hydraulic machinery, and the use of PCB-containing transformers. Similar operations continued after ownership transferred in 1984. Although no new PCBs would be produced after the 1979 ban, PCBs continued to be used in existing equipment throughout the United States[4] and therefore would continue to be used at the Site. This is supported by the PCB waste generated onsite after the ban, including 12,399 kilograms (kg) (27,336 pounds [lbs]) from 1982 to 1984 and 415 kg (915 lbs) from 1991 to 1993 (Knauf Shaw Western Electric Exhibit A1, 10–14, 27, 31; Knauf Shaw Western Electric Exhibit B, 1). The subsections below discuss further details regarding the waste records for specific site activities.

Cable Repair

From 1953 to at least 1990, Western Electric employees cut, de-reeled, and end-capped cables at the Site (Knauf Shaw Western Electric Site Dossier, 3). PCBs, particularly PCB Aroclors[5] 1254 and 1260, are associated with various components of electrical cables, including insulation, foam rubber, rubber, adhesive tape, and plastics (Erickson and Kaley 2011, 11, 14). As part of an occupational hazard exposure study in 1990, the National Institute for Occupational Safety and Health (NIOSH) tested various telephone cable sheathing materials used at the Site.[6] However, NIOSH did not analyze these materials for PCBs (NIOSH 1991, 3–4). Although the extent of PCB content in the cables stored and/or repaired onsite is unknown, either before or after the PCB ban, Western Electric disposed of large amounts of PCB contaminated materials (waste code B007[7]) five times from 1982 to 1983 that could have included cables with PCB components. The average weight of the five disposals was 2,091 kg (4,610 lbs) (Knauf Shaw Western Electric Exhibit A1, 11–14). However, because the B007 waste code encompasses a variety of "other PCB wastes" (including soil, solids, sludges, and clothing), the exact content of these disposals is unconfirmed.

[4] On May 31, 1979, the manufacture of PCBs was banned from non-enclosed uses, effective July 2, 1979 (EPA 1979a). Although PCBs were banned for use in 1979, they did not immediately disappear and are still present throughout the environment in trace quantities. As a result of the U.S. Environmental Protection Agency (EPA)-authorized five-year phase-out period and the continued use of these banned materials (EPA 1979b), some non-enclosed sources may have continued to retain old PCB-containing material and use of enclosed sources such as transformers may have continued beyond 1984 (EPA 1976, 273; Erickson and Kaley 2011, 2–3).

[5] Beginning in 1935, Swann Chemical Company, followed by the Monsanto Company, produced commercially available PCB-containing goods in a line of products known as "Aroclors." Each of the 10 common PCB Aroclor mixtures are generally associated with certain signatures of PCB congeners (there are 209 PCB congeners) (Erickson and Kaley 2011, 2–3). The style of reporting analytical data for PCBs varies in reviewed documentation. Results may be reported as individual Aroclors and/or congeners, as a sum of all or some of these analytes, or simply as "PCBs." For purposes of this memorandum, TIG Environmental will state "total PCBs" when the source document has reported analytical results as either "PCBs" or "total PCBs." This is presumed to represent the sum of PCB Aroclors or congeners. TIG Environmental will report Aroclor or congener-specific data where that information is available.

[6] The NIOSH Health Hazard Evaluation Report focused on decomposition products formed when cable sheathing materials were heated to temperatures consistent with applying heat shrinking end caps. Air sampling was conducted to monitor for organic vapors, metals, and other chemicals (NIOSH 1991, 1). PCBs were not listed as a contaminant of concern, and it is not apparent whether the cables tested were new or used.

[7] B007 waste is defined as other PCB wastes, including contaminated soil, solids, sludges, clothing, rags, and dredge material (6 CRR-NY 371.4 [e]). Western Electric's waste manifest records list these records under code B009 with the description "Other PCB Wastes (See B007)" (Knauf Shaw Western Electric Exhibit A1, 11–14). However, there is no current B009 waste code. Therefore, TIG assumes that B009 waste is equivalent to B007 waste.

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Hydraulic Machinery

For its reconditioning activities for communications equipment, Western Electric used machinery containing hydraulic fluids (Knauf Shaw Western Electric Site Dossier, 2). The site dossier indicates that Telesector's consultants[8] noted the presence of two hydraulic lifts in the building in 2011; however, the source document is unavailable for review (Knauf Shaw Western Electric Site Dossier, 4). Hydraulic fluids are typically associated with PCB Aroclors 1232 through 1260 (Aroclors 1232, 1242, 1248, 1254, 1260) (Erickson and Kaley 2011, 10). In 1976, EPA classified use of PCBs in hydraulic fluids as a "nominally closed" application (EPA 1976, 227). Although hydraulic systems are considered closed, EPA estimated that 60 percent of the PCBs used in such systems was lost to the environment on an annual basis due to spills in the system and inadequate disposal of the PCB-containing materials (EPA 1976, 307). Western Electric disposed of PCB-containing equipment under waste code B005,[9] which includes hydraulic machines, in 1983 (1,948 kg [4,295 lbs]) and 1993 (75 kg [165 lbs]) (Knauf Shaw Western Electric Exhibit A1, 11, 27). However, because the B005 waste code encompasses a variety of "PCB articles" (including various electrical equipment and components), the exact content of these disposals is unconfirmed.

Transformers

PCB-containing transformers existed on the Site, as evidenced by waste disposal records. Western Electric disposed of 1,221 kg (2,692 lbs) of PCB transformer waste[10] in 1984 and 340 kg (750 lbs) of B006[11] PCB transformer waste in 1991 (Knauf Shaw Western Electric Exhibit A1, 10–11, 31). Transformer dielectric fluid, also known as askarel, commonly contained PCBs, either Aroclor 1254 or Aroclor 1260, combined with trichlorobenzene (Erickson and Kaley 2011, 9–10). According to Telesector's consultants, seven pole-mounted transformers were located "nearby" the facility in 2011, though the specific location is unknown[12] (Knauf Shaw Western Electric Site Dossier, 4). The installation date for the transformers, their proximity to the Site, and whether they are related to the PCB transformers disposed of in 1984 and 1991 are unknown.

2.1 Discharge Permits and/or Spills at the Site

2.1.1 Discharge Permits

No State Pollutant Discharge Elimination System (SPDES) permits are on file for the Site. The site dossier indicates that a permit was issued for the installation of an oil/water separator to remove the oil before water

[8] In 2011, Telesector, operating as Verizon, hired ATC Associates to conduct a Phase I report on the Site in preparation to sell the facility (Knauf Shaw Western Electric Site Dossier, 4). However, the facility was not sold and is still operated by Verizon (Knauss 2014, 1).

[9] B005 waste is defined as PCB articles or equipment, excluding transformers and small capacitors, with greater than 500 parts per million (ppm) PCBs. A PCB article includes electric motors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, cable, hydraulic machines, pumps, pipes, or any other manufactured item with a surface that has been in direct contact with PCBs (6 CRR-NY 371.4 [e]).

[10] The 1984 transformer disposal record is listed under waste code B010, which is not a current PCB waste code in New York state. The waste description indicates that B010 waste is PCB-containing transformers with greater than 50 ppm but less than 500 ppm PCBs (Knauf Shaw Western Electric Exhibit A1, 10–11).

[11] B006 waste is defined as any transformer that contains 500 ppm or greater PCBs (6 CRR-NY 371.4 [e]).

[12] A review of aerial photographs indicates that a lot with several poles is located on the eastern side of the facility, although these poles may be related to telephone service rather than electrical utilities (Google Earth 2019).

was discharged to the sanitary sewer; however, the primary report is unavailable to review for further details (Knauf Shaw Western Electric Site Dossier, 4).

2.1.2 Spills Related to PCBs

The only spills reported at the Site were related to petroleum in underground storage tanks in 1987 or from a truck leaking onsite in 1999 (Knauf Shaw Western Electric Site Dossier, 3). In 2011, Telesector's consultants noted that there was staining around drums and equipment throughout the facility, including near the vehicle maintenance area and near the hydraulic lifts (Knauf Shaw Western Electric Site Dossier, 4). Any spills near the hydraulic lifts could have potentially involved PCBs if the hydraulic lifts used PCB-containing hydraulic fluids.

2.2 PCB Discharges to Ley Creek or Tributaries

This section discusses the documented or potential discharge pathways of PCBs from the Site, with emphasis on discharges to Ley Creek or its tributaries.

2.2.1 Direct Discharge

This section discusses the documented or potential PCB-containing direct discharges from the Site to Ley Creek or its tributaries.

- The Site is not located directly adjacent to Ley Creek or its tributaries. South Branch Ley Creek crosses under Thompson Road approximately 0.15 miles south of the Site. The Site is separated from South Branch Ley Creek by residential and industrial properties and no direct drainage channels appear in aerial photographs.

2.2.2 Sanitary Sewer

This section discusses the documented or potential PCB-containing discharges from the Site via sanitary sewers.

- An oil water separator was installed at the Site in 1997. Oil and water were discharged into four drains, pumped into an underground oil/water separator located to the south of the building, and ultimately drained to the Dewitt sanitary sewer (Knauf Shaw Western Electric Site Dossier, 4). Therefore, a potential discharge pathway from the facility via sanitary sewers exists post-1997, when the Site was operated by Telesector.
- The discharge pathway from the facility prior to the installation of the oil water separator in 1997 is unknown.

2.2.3 Storm Sewer

No information is available to characterize potential discharges from the Site via storm sewer.

2.2.4 Runoff

No information is available to characterize potential discharges from the Site via stormwater runoff.

2.2.5 Groundwater

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via groundwater.

- The groundwater onsite is believed to flow toward South Branch Ley Creek. Therefore, a potential groundwater discharge pathway exists for PCB-containing materials from the Site to South Branch Ley Creek (Knauf Shaw Western Electric Site Dossier, 4).
- Potential groundwater contamination of other COCs has been noted on the Site. PAHs may have migrated to the subsurface and groundwater via petroleum spills from underground storage tanks or leaching from telephone poles stored above ground (Knauf Shaw Western Electric Site Dossier, 3–4).

3. Data Gaps

TIG Environmental has identified the following data gaps that would increase the understanding of how PCBs were used onsite and/or released from the Site.

- The site dossier references a 2011 site study that notes the presence of transformers, hydraulic lifts, and staining around storage drums and equipment; however, the original document is not provided as an exhibit or in the Freedom of Information Law (FOIL) documents. Additionally, this report discusses the facilities drainage and discharge system to the sanitary sewer. The primary source document is needed to fully understand the use and locations of PCB equipment onsite and the potential for migration of PCB contamination into the Ley Creek Watershed.
    - Recommendation: Request the 2011 Phase I Report that ATC Associates prepared for Telesector.

4. Proposed Sampling to Assess Contributions to the Study Area

Because of the data gaps identified in Section 3, TIG Environmental proposes additional sampling at the Site, as described below. The sampling locations should be analyzed for PCB Aroclors (EPA Method 8082A), PCB congeners (EPA Method 1668C), total organic carbon (Lloyd Kahn method), grain size (ASTM D422), and total solids (ASTM D2216-98). In addition to those parameters, TIG Environmental may also propose sampling for particular contaminant classes (that is, metals, polycyclic aromatic hydrocarbons [PAHs], volatile organic compounds [VOCs], and semivolatile organic compounds [SVOCs]), depending on the nature of operations surrounding a particular sampling location.

4.1 Soil

There is no record of soil characterization for the Site. Therefore, TIG Environmental recommends sampling soil to analyze for PCBs. Additionally, because of bulk petroleum storage and other waste generation onsite, other contaminants to screen for include VOCs and PAHs. Little is known about the exact location of PCB-containing equipment, the groundwater, runoff, and the sanitary/sewer lines on the Site and how they are connected to South Branch Ley Creek. Therefore, TIG Environmental proposes sampling soil in various uncovered locations throughout the Site, including in the pole area to the east of the building and two locations in the undeveloped northeast corner of the Site.

4.2 Sediment

As limited information is available for discharge pathways from the Site to South Branch Ley Creek, appropriate sediment sampling locations cannot be determined at this time. TIG Environmental may recommend sediment sampling locations after review of the 2011 Phase 1 report is available (Section 3).

5. References

This ESM was prepared using the evidentiary materials listed below and provided with this document.

6 CRR-NY (Codes, Rules and Regulations of the State of New York) 371.4. Title 6 Part 371.4 (e): Wastes containing polychlorinated biphenyls (PCBs).

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